Pushing the Envelope			
2006 Science and Technology/Engineering			
Curriculum Frameworks			
Massachusetts Science and Technology/Engineering			
Grades 9-12			
Activity/Lesson	**State**	**Standards**	
Types of Engines (pgs. 11-23)	MA	SCI.9-12.E.III.4	Measure with accuracy and precision (e.g., length, volume, mass, temperature, time)
Types of Engines (pgs. 11-23)	MA	SCI.9-12.C.III.9.3	Use appropriate metric/standard international (SI) units of measurement for mass (kg); length (m); and time (s).
Chemistry (pgs. 25-41)	MA	SCI.9-12.E.III.4	Measure with accuracy and precision (e.g., length, volume, mass, temperature, time)
Chemistry (pgs. 25-41)	MA	SCI.9-12.B.III.4	Measure with accuracy and precision (length, volume, mass, temperature, time, etc.)
Chemistry (pgs. 25-41)	MA	SCI.9-12.C.I.5.A.5.2	Classify chemical reactions as synthesis (combination), decomposition, single displacement, double displacement, and combustion.
Chemistry (pgs. 25-41)	MA	SCI.9-12.C.I.6.A.6.1	Using the kinetic molecular theory, explain the behavior of gases and the relationship between pressure and volume (Boyle's law), volume and temperature (Charles's law), pressure and temperature (Gay-Lussac's law), and the number of particles in a gas sample (Avogadro's hypothesis). Use the combined gas law to determine changes in pressure, volume, and temperature.
Physics and Math (pgs. 43-63)	MA	SCI.9-12.E.III.9.2	Use appropriate metric/standard international (SI) units of measurement for mass (kg); length (m); time (s); force (N); speed (m/s); acceleration (m•s-2); and frequency (Hz).
Physics and Math (pgs. 43-63)	MA	SCI.9-12.B.III.8	Use ratio and proportion in the solution of problems.
Physics and Math (pgs. 43-63)	MA	SCI.9-12.P.I.1.A.1.1	Compare and contrast vector quantities (such as, displacement, velocity, acceleration, force, and linear momentum) and scalar quantities (such as, distance, speed, energy, mass, and work).
Physics and Math (pgs. 43-63)	MA	SCI.9-12.P.I.1.A.1.4	Interpret and apply Newton's three laws of motion.
Rocket Activity (pgs. 69-75)	MA	SCI.9-12.P.I.1.A.1.4	Interpret and apply Newton's three laws of motion.
Rocket Activity (pgs. 69-75)	MA	SCI.9-12.P.I.1.A.1.5	Use a free-body force diagram to show forces acting on a system consisting of a pair of interacting objects. For a diagram with only co-linear forces, determine the net force acting on a system and between the objects.